



A research framework for identifying potential linkages between isolated wetlands and disease ecology

Author(s): Kirkman LK, Whitehead EA, Golladay SW, Smith LL, Opsahl SP
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Abstract:

Isolated wetlands are ideal model systems to examine linkages between environmental change, complex food webs, and the ecology of mosquito-borne diseases. Through long-term studies, we have evaluated the diversity among plant, invertebrate, and amphibian species of relatively undisturbed isolated wetlands. Based on preliminary evidence from impaired wetlands, we have developed a conceptual model to examine how human land use and climate change may affect wetland ecosystem functions that ultimately link to the proliferation of mosquito-borne diseases through the alteration of food webs and mosquito habitat. Our research framework initially requires the development of a wetland condition ranking system for a large group of isolated wetlands based on potential habitat for mosquitoes that vector disease. Secondly, it identifies potential changes in ecosystem function that specifically address the role of aquatic fauna in mediating mosquito-borne infectious diseases. Ultimately, understanding ecological functions and services will help focus the need for better management practices and potential regulation of impacts to isolated wetland habitats in the USA.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes

Geographic Feature:

resource focuses on specific type of geography

Other Geographical Feature

Other Geographical Feature : wetlands

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

Climate Change and Human Health Literature Portal

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Mosquito-borne Disease

Mosquito-borne Disease: General Mosquito-borne Disease

Resource Type: 

format or standard characteristic of resource

Research Article, Review

Timescale: 

time period studied

Time Scale Unspecified